WE CLAIM:

1. A power module for low voltage applications, comprising:

a power shell;

a plurality of lead frames extending through the power shell;

a plurality of conductive pads disposed in an interior of the power shell, each one of the plurality of conductive pads being integral with a respective one of the plurality of lead frames;

at least one power semiconductor device disposed on each one of the plurality of conductive pads;

a thermally conductive but electrically insulating substrate, the substrate having a first surface in thermal contact with at least one of the plurality of conductive pads and a second surface opposing the first surface for making thermal contact with a heat sink;

a control circuit board having disposed thereon an electronic control circuit for providing signals to the power semiconductor devices;

at least one terminal providing electrical connection to the control circuit board, the at least

one terminal being electrically connected to at least one of the power semiconductor devices; and

a plurality of wire bonds for electrically interconnecting the power semiconductor devices through the conductive pads to form a circuit.

2. The module of claim 1, wherein the circuit is a three phase inverter circuit.

3. The module of claim 1, wherein the power semiconductor devices are MOSFETs.

4. The module of claim 3, wherein the MOSFETs are rated between thirty and seventy-five volts.

5. The module of claim 1, wherein the control circuit board is mounted atop the power shell.

6. The module of claim 1, wherein the interior of said power shell is filled with potting material.

7. The module of claim 6, wherein the power shell is a molded plastic.

8. A power module for low voltage applications, comprising:

a power shell;

a plurality of MOSFETs, each one of the plurality of MOSFETs having a drain electrode on a surface thereof, and a source electrode on an opposing surface thereof;

a plurality of lead frames extending through the power shell;

a plurality of conductive pads disposed in an interior of the power shell, each one of the plurality of conductive pads being integral with a lead frame, and electrically connected to a drain electrode of at least one MOSFET;

a common drain pad integral with a lead frame, and electrically connected to the drain electrodes of more than one MOSFET to electrically connect the same;

a source pad integral with a lead frame;

a thermally conductive but electrically insulating substrate, the substrate having a first surface in thermal contact with at least one of the plurality of conductive pads and a second surface opposing the first surface for making thermal contact with a heat sink;

a control circuit board having disposed thereon an electronic control circuit for providing signals to the MOSFETs;

at least one terminal providing electrical connection to the control circuit board, the at least one terminal being electrically connected to at least one of the MOSFETs; and

a plurality of wire bonds for electrically inter-connecting the source electrodes of the MOSFETs through the pads to form a circuit.

9. The module of claim 8, wherein the MOSFETs are inter-connected to form a three phase inverter circuit.

10. The module of claim 8, wherein the MOSFETs are rated between thirty and seventy-five volts.

11. The module of claim 8, wherein the control circuit board is mounted atop the power shell.

12. The module of claim 8, wherein the interior of said power shell is filled with potting material.

13. The module of claim 8, wherein the power shell is a molded plastic.

14. The module of claim 8, wherein each one of the common drain pad and the source pad is electrically connected to a respective pole of a battery.

15. The module of claim 8, wherein each one of the lead frames that is integral with a conductive pad is an output terminal.